AMENDMENTS TO THE CLAIMS

Please amend claims 46-51, as follows:

1-25.   (Canceled)

26.   (Previously Presented) A method of gating an application of radiation, comprising:

obtaining a first set of data representative of a physiological movement of a patient during a first time period;

obtaining a second set of data related to a measured physiological movement of the patient during a second time period;

comparing the first set of data with a second set of data; and

gating an application of radiation to the patient based on a result of the comparing.

27.   (Previously Presented) The method of claim 26, wherein the comparing the first set of data with the second set of data comprises pattern matching the first set of data with the second set of data.

28.   (Previously Presented) The method of claim 27, wherein the first set of data and the second set of data are pattern matched using an autocorrelation function.

29.   (Previously Presented) The method of claim 27, wherein the first set of data and the second set of data are pattern matched using an absolute difference function.

30.   (Previously Presented) The method of claim 26, further comprising determining a degree of match between the first set of data and the second set of data.

31.   (Previously Presented) The method of claim 30, wherein the degree of match is determined based on a secondary peak value of an autocorrelation function.

32.   (Previously Presented) The method of claim 30, wherein the degree of match is determined based on a secondary minimum value of an absolute difference function.

33.   (Previously Presented) The method of claim 30, further comprising comparing the degree of match to a threshold range.

34.   (Previously Presented) The method of claim 33, wherein the physiological movement is considered deviated from a normal physiological movement when the degree of match is outside the threshold range.

35.   (Previously Presented) The method of claim 33, wherein the physiological movement is considered substantially the same as a normal physiological movement when the degree of match is within the threshold range.

36.   (Previously Presented) The method of claim 26, further comprising predicting a period of physiological movement during a third time period.

37.   (Previously Presented) The method of claim 36, further comprising predictively actuating a gating system component based upon the predicted period.

38.   (Previously Presented) The method of claim 26, further comprising determining a period of the physiological movement.

39.   (Previously Presented) The method of claim 38, further comprising defining a treatment interval to apply the radiation to the patient.

40.   (Previously Presented) The method of claim 39, wherein the treatment interval is defined by phase of a physiological movement of the patient.

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41. (Previously Presented) The method of claim 26, wherein the second set of data is obtained based on a data model of a physiological movement of the patient.

42. (Previously Presented) The method of claim 26, further comprising determining a degree of deviation from periodicity of a physiological movement based on a result of the comparing.

43. (Previously Presented) The method of claim 42, wherein the gating comprises applying radiation to the patient when the degree of deviation from periodicity is within a prescribed threshold.

44. (Previously Presented) A method for gating an execution of a procedure, comprising:

determining a variable representative of a degree of completion of a cycle of a physiological movement; and

gating an execution of a procedure based upon the variable.

45. (Previously Presented) The method of claim 44, wherein the determining comprises comparing a first set of data representative of the physiological movement during a first time period with a second set of data related to the physiological movement during a second time period.

46. (Previously Presented) The method of claim 45, wherein the comparing comprises pattern matching the first set of data with the second set of data.

46 47. (Currently Amended) The method of claim 46, wherein the first set of data and the second set of data are pattern matched using an autocorrelation function.

47 48. (Currently Amended) The method of claim 46, wherein the first set of data and the second set of data are pattern matched using an absolute difference function.

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48 49. (Currently Amended) The method of claim 44, wherein the procedure comprises an application of radiation.

49 50. (Currently Amended) The method of claim 48 49, further comprising defining a treatment interval for applying the radiation.

50 51. (Currently Amended) The method of claim 49 50, wherein the gating comprises applying the radiation when the degree of completion of the cycle is within the treatment interval.

51 52. (Previously Presented) The method of claim 44, wherein the variable has a range between 0° and 360°, with 0° representing a beginning of a physiological cycle, and 360° representing an end of a physiological cycle.